

In the Claims

1-22. (Canceled)

23. (New) A communications network for connecting a plurality of nodes, the network comprising:

first, second, third and fourth optical networks each arranged to be capable of carrying a respective first, second, third and fourth set of channels, said first and second set of channels being carried in an opposite direction to said third and fourth set of channels with respect to said nodes,

said first and third optical networks each comprising a plurality of splitters serially connected by optical waveguides such that an output port of one of said respective splitters is connected to an input port of another of said respective splitters, and wherein a non-serially connected output port of one of said splitters forms an output of one of said nodes;

said second and fourth optical networks each comprising a plurality of couplers serially connected by optical waveguides such that an output port of one of said respective couplers is connected to an input port of another of said respective couplers, and wherein a non-serially connected input port of one of said respective splitters forms an input of one of said nodes.

24. (New) A communications network according to claim 23, wherein said output of one of said nodes and said input of one of said nodes are an output and input of the same node.

25. (New) A communications network according to claim 23, wherein at least one of said nodes comprises outputs formed from non-serially connected output ports of respective splitters of said first and third optical networks.

26. (New) A communications network according to claim 25, wherein said at least one of said nodes further comprises inputs formed from non-serially connected input paths of respective couplers of said second and fourth optical networks.

27. (New) A communications network according to claim 23, wherein said splitters and couplers are periodic interleaving filters.

28. (New) A communications network according to claim 27, wherein said periodic interleaving filters are fused fibre splitters or couplers.

29. (New) A communications network according to claim 23, wherein said splitters and couplers are respectively arranged to split and couple channels equally between outputs and inputs.

30. (New) A method of operating a communications network for connecting a plurality of nodes, the network comprising:

first, second, third and fourth optical networks each arranged to be capable of carrying a respective first, second, third and fourth set of channels, said first and second set of channels being carried in an opposite direction to said third and fourth set of channels with respect to said nodes,

said first and third optical networks each comprising a plurality of splitters serially connected by optical waveguides such that an output port of one of said respective splitters is connected to an input port of another of said respective splitters, and wherein a non-serially connected output port of one of said splitters forms an output of one of said nodes;

said second and fourth optical networks each comprising a plurality of couplers serially connected by optical waveguides such that an output port of one of said respective couplers is connected to an input port of another of said respective couplers, and wherein a non-serially connected input port of one of said respective splitters forms an input of one of said nodes.